# MONTANA Wildlife

July, 1961—Montana Fish and Game Department Official Publication
Information-Education Division

TRAIL TROUT
HUNTING BLACK BEAR
OUTDOOR RECREATION
NORTHERN PIKE
SAGE GROUSE
GALLATIN ELK
FARM PONDS
WOLVES

# In Memory

Iver "The Swede" Hoglund, hatchery foreman at the Great Falls fish hatchery, passed away January 26, 1960.

Iver boasted more time with the Montana Fish and Game Department than any other man. He was born April 4, 1903 in Galesburg, North Dakota. He was first employed by the department at the Emigrant fish hatchery on July 1, 1921. Iver is survived by his widow, Maude, of Big Timber.

* * * *

John C. (Jack) Thompson, state fish and game warden at Townsend, Montana, died December 10, 1960. Jack was born in Oasis, Utah, April 3, 1913. He began work for the department September 1, 1939 as a special deputy warden.

Jack served as sheriff of Broadwater county from January 1951 until July 1954. He was also infantry staff sergeant with two-and-a-half years' service. He is survived by his widow, three sons and three daughters.

* * * *

Both men were a credit to the department, having served long and diligently. They will be remembered by their many friends within the department and by many sportsmen.

**IVER HOGLUND**

**JOHN C. THOMPSON**

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**The following editorial is a summary of a speech made on the Senate floor by Senator Walter G. Sagunsky during the debate on SB 137:**

Senate Bill 137 would give new industry certain tax privileges. Now my past record on the floor of the Senate shows that I have always been in favor of a fair break for business. For any business presently in Montana or any new industries coming here of their own volition, I would give them every consideration. I would favor any small business that would come in and stabilize our small communities. The area around Butte may need some replacement business if the mining industry is not stabilized. All of these things I think would be right and good for Montana.

But to say that large amounts of new industry should be given fast tax write-offs or any other inducements to come to Montana so that they may broaden the tax base is, in my estimation, not the right philosophy for Montana.

Nobody has even taken into consideration that along with the new industry and the new taxes will also come the new and additional problems. The people attracted by this industry will require more schools, more streets, more police protection and other services which will more than eat up the new tax money they bring. Eventually, they will also bring the new problems of slums in our larger towns. We would also be compelled to support these people during strikes and layoffs.

If we think this broadening of the tax base by industry would solve everything, we should look at the state of Michigan. This state is full of industry with the Ford Motor Company, General Motors, Chrysler and all of the satellite industries who supply parts for these large plants. Yet with all this industry Michigan went broke. They could not pay the school teachers and many people in state government. Industry was even asked to pay its taxes in advance. This financial catastrophe happened in spite of a 3% sales tax being paid by the people. We should look at Texas which in the past twenty years has attracted millions of dollars of new industry yet today they are $300,000,000 in the red and the legislature is in its seventh special session with no solution to their problem in sight.

Compare this with the stable agricultural economy of Montana. While we have our problems, they are surely nothing compared to the trouble that large amounts of heavy industry could bring to us. The city of Missoula has just recently acquired a new industry. I noticed in the press about a week ago there is

a smog condition developing. The press release indicates a request for a solution to the problem. This should be the first warning.

Unless you have a monopoly, all of the new people and the money changing hands will not help the man in business today. When profits reach a certain point there will immediately be a new filling station, store, motel or restaurant to compete with any business showing a good profit. The final result could be more competition and less profit.

Montana was made to be an outdoor land. We have surely been fortunate to have clean water, clear air and beautiful shining mountains—a land of recreation, fishing, hunting, good living and steady employment. The water and the land can support only so much wildlife and only give so much room for other types of recreation. These considerations must be included in any part of the industrial planning for Montana. We do not wish to artificially crowd out these recreational resources. In the natural course of our increased population and industry we will lose this heritage, as we know it, soon enough.

My primary concern over the movement of heavy industry into Montana at a reduced tax rate is that this would surely result in the pollution of our water and air. This in turn would lead to the destruction of our fish and wildlife as we know it today. To my knowledge there have never been any anti-pollution laws adopted that could preserve the clean, usable, healthful water enjoyed today by the people of Montana. Big industry's normal tendency is to create more pollution than it can control.

I am in favor of any sound industry that can take care of its share of the tax load and not be subsidized by existing industry and the people. Such industry would be more apt to solve its pollution problems and accept its responsibilities to the people of Montana.

# *Trail Trout*

SERIES IV—West Fork Bitterroot River Lakes

JOE E. HUSTON, Fisheries Biologist

As a result of the great increase in fishermen during recent years, many Montanans have turned to the largely unexploited, remote, high mountain lakes. These lakes represent one of the last frontiers where fishermen can get away from crowds fishing the more accessible waters. Enterprising sportsmen willing to expend the additional energy for this type of fishing are well rewarded with the thrill of being in an area largely untouched by man and, in addition, with the chance to catch a limit of very elusive trout.

The Montana Fish and Game Department annually conducts biological surveys to assess the value of a number of high mountain lakes. Fish present, lake depths and sizes, spawning areas, and other pertinent information are recorded. From these facts, past management efforts can be evaluated and future recommendations formulated for sound management of this resource.

The surveys have shown that some of the mountain lakes do not have fish, while many have good fish numbers. Other lakes have conditions resulting in stunted fish.

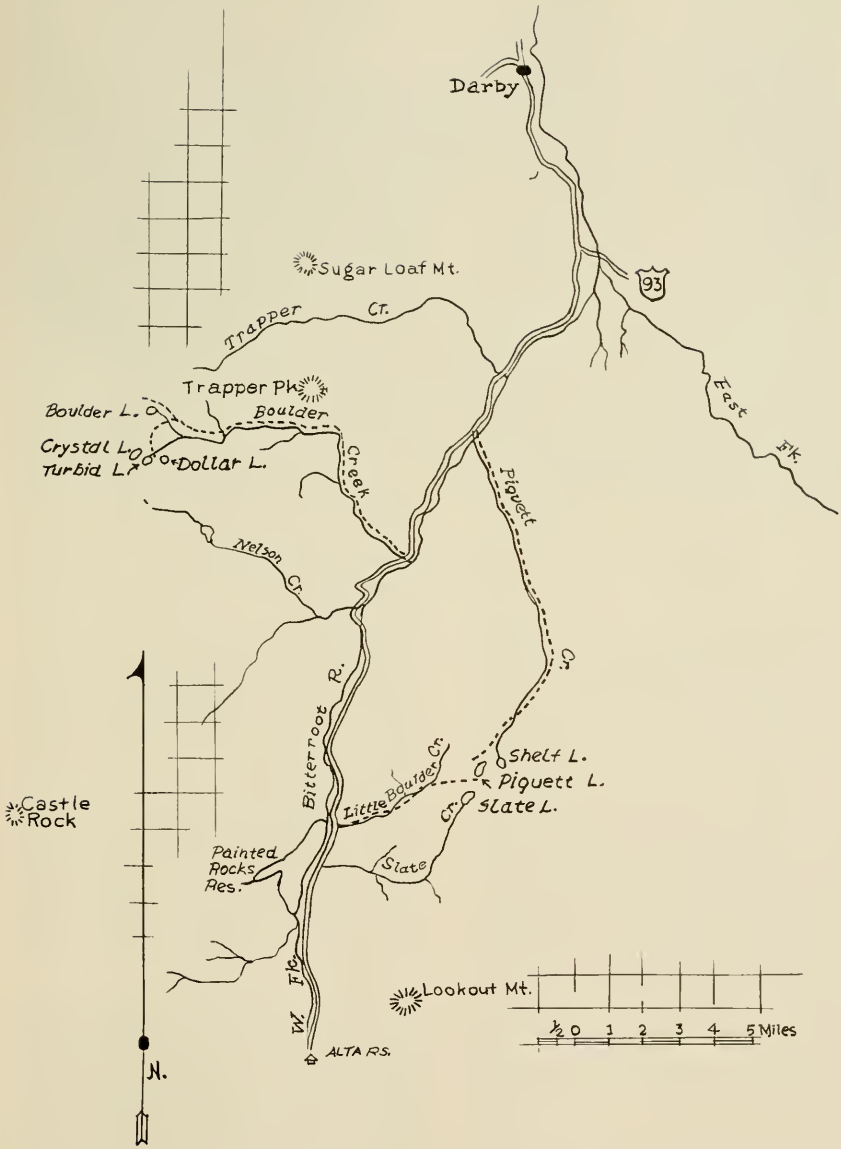
Some of the questions we try to answer by our lake surveys are: It is likely that barren lakes will support fish? If so, is it in the best interest of the fishing public to plant the lakes now; and what is the best course of action in lakes that presently have fish?

Some lakes may need plants of hatchery fish to maintain good fishing. In other situations, such as lakes that have ample spawning sites, stocking hatchery fish may not be necessary. In other cases, hatchery fish may adversely affect fish already in the lake and these plants should be discontinued.

During the summer of 1959, seven mountain lakes were surveyed in the West Fork of the Bitterroot River drainage. Three are at the head of Piquette and Slate Creeks and four lie at the head of Boulder Creek.

The four lakes in the Boulder Creek drainage are Boulder, Crystal, Dollar and Turbid Lakes. They can be reached by driving through Darby, Montana on U. S. Highway 93, up the West Fork of the Bitterroot River to Boulder Creek, and two miles up Boulder Creek by Forest Service road. The lakes lie another twelve miles up-country by Forest Service trail from the end of the road. If pack stock is taken and more than a one-night stay is planned, it would be wise to take horse feed along.

There are several good campsites on Boulder Lake and it would be best to make headquarters here. The remain-


Darby
Sugar Loaf Mt.
93
Trapper Cr.
Trapper Pk.
Boulder L.
Boulder
Crystal L.
Turbid L.
Dollar L.
Creek
East Fk.
Piquett
Cr.
Nelson Cr.
Bitterroot R.
Shelf L.
Piquett L.
Slate L.
Little Boulder Cr.
Castle Rock
Painted Rocks Res.
Slate
W. Fk.
Lookout Mt.
ALTA RS.
N.
½ 0 1 2 3 4 5 Miles

ing three lakes are within one mile of this camping area.

Boulder Lake has a surface area of 20 acres and a maximum depth of 60 feet. A dam at the outlet raises the water level about 8 feet during spring and summer. Rafts are on the lake but it can be fished from shore along the inlet, outlet, and slide rock on the north shore.

Boulder Lake has not been planted with hatchery fish since 1941. Our survey showed that it contains good numbers of cutthroat trout, ranging from 6 to 16 inches long. No fish plants will be scheduled for this lake in the immediate future as natural production is presently providing a good fish population.

The following tips may be helpful to persons fishing this lake as it has the reputation of being very temperamental. Try the slide rock area during the day with hardware or wet flies. The shallower inlet and outlet should be good for evening or morning fishing with wet or dry flies.

A trail across the Boulder Lake outlet leads to Turbid and Crystal Lakes. The trail is steep but only about one-half mile long. Crystal Lake, first along the trail is 8 acres in size, has a maximum depth of 28 feet, and can be fished from the shore. The survey showed that cutthroat trout are present, but are scarce. The fish average somewhat over 13 inches in length and the best fishing spot would be from the slide rock on the western end of the lake. Crystal Lake was planted with cutthroat trout in 1960, and fishing should be considerably improved by 1962.

Turbid Lake lies about 200 yards east of Crystal Lake, but contains no fish. Due to its small size and shallow depth, it has been recommended that it not be planted. This lake was planted in 1952, but apparently the fish winterkilled.

From Turbid Lake, it is a short jaunt of about one-fourth mile down the outlet stream to Dollar Lake, but one must be part mountain goat to negotiate the steep slopes, cliffs and rock slides. Dollar Lake covers 5 acres and has a depth of 20 feet. Of the three lakes, it is the most consistent producer to the fishermen. Cutthroat trout from 10 to 13 inches long are abundant and usually easy to catch. As there is ample natural reproduction, no plantings of hatchery fish are needed in this lake.

The lakes, Piquette, Slate and Shelf at the head of Piquette and Slate Creek, are reached by driving further up the West Fork of the Bitterroot to a trail which begins about one-half mile above the Painted Rocks Reservoir dam. This seven-mile trail into the three lakes follows Little Boulder Creek. Here again if pack stock is used, it is imperative that feed be taken. Campsites are near Piquette Lake and Slate Lake, but are poor.

Piquette Lake has an area of 6 acres and a depth of 20 feet. It can be fished along the entire shoreline and has a fair number of cutthroat trout, averaging about 11 inches long. Shelf Lake lies about one-fourth mile east of Piquette Lake. It is 10 acres in size with a depth of 20 feet. The survey showed that a fair number of cutthroat trout, averaging 13 inches long, inhabit the lake. This lake can be fished from shore, but errant casts may mean tackle in the tree branches.

Slate Lake does not contain fish. Because of its small size and shallow depth, it will not be planted. The limited fishing pressure on Piquette and Shelf Lakes does not warrant immediate restocking; however, it may be necessary to introduce hatchery trout sometime in the future.

A trip into any of these seven lakes will be a never-to-be-forgotten experience. Of the two groups, Boulder Creek lakes offer the best fishing and the largest fish. However, the high esthetic value of the magnificent scenery and grandeur surrounding any of these lakes should guarantee personal satisfaction on either trip. The choice is yours to make.

# TIPS ON HUNTING BLACK BEAR

CHARLES JONKEL, Biologist

Western Montana mountains boast some real bear country. In fact, the black bear numbers there are not even touched through hunting. But the hunter who heads for rough country with dreams of a bear trophy has his work cut out for him. In fact, the fellow who takes to the timber with a rifle and high hopes but *no* knowledge of bear habits is likely to come out sore-legged and empty-handed. If the few tips offered here are practiced, sportsmen will have a substantially better chance of getting that bear rug.

WHERE TO HUNT—Black bears are inhabitants of mountainous areas. In Montana, the mountain country is primarily in the western portion. Nearly all of Montana west of the continental divide and the eastern slopes of the main divide offer bear hunting.

Some of the areas of higher concentration are the Swan Valley, the South and Middle Forks of the Flathead, the Whitefish Range, the St. Regis River, Thompson Falls west, and the Libby country. Side drainages of these areas are best because they cut through steep topography affording hunters a good view of side hills.

WHEN TO HUNT — During, 1960, more than 40% of the black bears that fell to hunters were taken before the general big game season opened October 16. Another 35% were taken during the first ten days of the general season. Most of the remainder were taken in the next ten days and by November 1st the black bear hunting was about wound up. This is generally the pattern for bear hunting, for the first or middle of November, depending on weather, black bears go into hibernation.

Bear hunters are most successful during spring. During the spring and early summer, bruin gathers with his kin on side hill parks, snowslide areas, and

grassy logging roads below the snow-line. Here they feed upon wheat grass, angelica, horse - tail, dandelions, and clover. Since the area that a bear ranges is relatively small (often less than one square mile) individuals feed regularly in such areas where these plants abound. Clear-cut logged areas are seldom used.

Feeding activity is highest during the morning until around 9:00 a.m. and in the evenings from about 4:00 p.m. until dark. They may, however, forage for food any time of day.

Bears also congregate during late summer and fall, but at this time they move into the dense vegetation of creek bottoms or north slopes. There they feed upon huckleberries, cow parsnips, dogwood berries, buckthorn berries, etc. Bruin is hard to find in the thick growths, but some are more exposed along roads and open creek bottoms where they feed on dandelions and horse-tail. Also, for a short time around the first of September, bears frequent high ridges and divides in search of whitebark pine cones, wire grass or woodrush.

In late fall, bears are still feeding upon berries. The fruit of mountain ash, which grows on north slopes and rockslides of the south slopes, become the most important berries at this time. They will feed upon mountain ash after the leaves have fallen from most bushes and are thus more easily seen in brushy areas. There is often tracking snow in the mountains at this time of year.

## THE HIDE AND MEAT

Hides are usually prime and suitable for trophies from early spring until about the middle of June, and from about mid-August until they hibernate. Care should be taken with the hides, especially in warm weather. Several pounds of salt should be rubbed into all parts of the fleshy side of the hide. The hide can then be rolled but should be salted again in several days. If it is not necessary to roll the hide, salt it well and leave it spread out. Never roll an unsalted hide unless it is to be frozen and never leave any hide lying for very long in direct sunlight.

Although hunters will not be required to use the meat of black bears after July 1, 1961, the meat is good to eat all through the season — though most persons prefer bears killed in the fall. The meat should be treated the same as meat of any other game animal. Properly cooled and aged, all cuts are good. Like most game, the quality of meat will vary with animals, but commercial shops can make good sausage from any properly handled bear.

## THE 1961 BLACK BEAR SEASON

The 1961 black bear season began March 15 and will close with the end of general big game hunting. Residents may hunt black bear on a valid 1961 big game license. Non-residents may not purchase the $20 special license until July 1, 1961. The map below will give the non-resident an idea where he may expect to hunt on the special $20 license. Complete regulations and a more detailed map will be included with the general big game regulations. This will be available upon request some time in August.

—Photo Courtesy U. S. Forest Service

# Outdoor Recreation

ROBERT F. COONEY, Montana State Contact Officer
National Outdoor Recreation Resource Review Commission

Outdoor recreation has in some respects been a neglected resource. With the exception of several federal and state agencies and organizations tied in directly with recreation problems, the general feeling has been one of apathy or disinterest. Most of us, particularly here in the west, have been inclined to take our outdoor recreational opportunities pretty much for granted. This is easy to understand as we have been brought up in an environment of ample space. Beautiful open country has been virtually at our d o o r s t e p. We have hunted, fished, and camped—in most cases pretty much where we wished. Even here, however, we are beginning to sense a change which cannot help

but give us a feeling of uneasiness. In recent years, we have found ourselves barred from some of the particularly enjoyable spots that were available to us in the past. These are only hints, however, of changes that are rapidly taking place in the more populated portions of our nation. To make this problem more pressing, the need for outdoor recreation is increasing tremendously while nationwide the opportunities for the enjoyment of these resources are diminishing at an alarming rate.

Montana with an abundance of public land, coupled with unusually fine scenery, possesses an opportunity to make an important contribution in the field of outdoor recreation. Careful planning will be essential to insure our recreational opportunities will be developed in harmony with other important uses of the natural resources of our state. This, of course, is not only a statewide problem but one of national importance.

All of us who hope that Montana will remain an exceptionally pleasant place in which to live were pleased to learn that in 1958 Congress authorized a definite study of the nation's outdoor recreational resources and needs. This study is being carried out on a state-by-state basis.

Briefly, the objectives of the Outdoor Recreation Resource Review Commission are as follows:

1. To make a statewide and national study of the recreational resources presently available.

2. Determine the present outdoor recreational needs of the nation and project this to the years 1976 and 2000.

3. To develop plans for carefully coordinated recreational development in cooperation with all interested agencies, groups, and individuals.

It is encouraging to see the fine work that is being carried out here in Montana and throughout the nation that will contribute so materially to the success of this important activity. As a part of their Operation Outdoors, the U. S. Forest Service has completed an excellent recreational inventory of lands under their jurisdiction. Through the Mission 66 program, the National Park Service has finished a similar recreational inventory. It is also pleasing to note that the Bureau of Land Management has completed a long-range inventory which included the recreational potential of the public lands under their administration. State agencies, including the State Parks Division, the Fish and Game Department and the State Forester's Office, have made important contributions to Montana's share in this national recreational survey to be completed this year.

This program, known to many by its initials—ORRRC—, represents the first unified attempt to give the nation's increasingly important outdoor recreational resources their rightful place in the sun. Montana, with so much to offer, will surely continue to play a vital role in the recreational future of the nation.

These studies and plans, although vitally important, are however just the beginning. It will take sustained interest and dedication to see them brought to completion. This could well be the most vital phase of the program. It is here where sportsmen's groups and others interested in the optimum development of our recreational resources can be of tremendous assistance. There will be few opportunities where we can do so much for the future enjoyment of the people of Montana and the nation.

# WHY NOT PLANT NORTHERN PIKE?

GENE WELCH, Fisheries Biologist

A question often asked of the Montana Fish and Game Department is "Why not plant northern pike in Montana lakes that don't provide good trout fishing?" The department feels it is advisable to restrict the use of northern pike. An extensive pike program would not add greatly to fish catches and may have adverse effects on our trout.

Let's look at Minnesota as an example of what pike fishing offers from the standpoint of numbers caught. This is one of the top northern pike states but still the rate of catch on pike is poor. On some of their best pike lakes it takes three and one-half to almost seven hours to catch one pike. These figures are for pike fishermen only and would be even greater if all fishermen were included. Compare this to an average of one trout for every hour and six minutes of fishing in Montana and, admittedly, pike are not the answer to better fishing success.

When Montana sportsmen request plants of northern pike, it is usually for lakes overrun with suckers. However, pike do not eat enough suckers to keep their numbers under control.

The main thing that limits the abundance of northern pike is the lack of suitable spawning sites. They require large, flooded, grassy areas with stable water levels during the spawning period. Most Montana lakes are deep and lack shallow grassy areas. Still others are manipulated for irrigation. This means fluctuating water levels which are not compatible with pike reproduction. Actually, Montana has few waters suitable for pike. Wherever we have pike we cannot expect trout fishing, for the big northerns are efficient predators on trout.

Enforcement records show that the presence of pike promotes the use of live fish for bait—even where use of live bait is illegal. Where live bait is used, there is always a possibility of contaminating the water with trash fish. This, of course, can badly damage good trout lakes and streams. Hebgen Lake is a prime example. Here, Utah chubs were introduced by bait fishermen and have since overrun the lake and spread down-river.

Taking all things into consideration, a wide distribution of pike would at best not provide outstanding fishing. They would very definitely be a detriment if they were spread through good trout waters.

The dyed-in-the-wool pike fisherman need not feel too disappointed for several Montana lakes do offer pike fishing. These include: Pike Lake near Babb, Split Rock near Augusta, Nelson Reservoir near Malta and Aarod Lakes near Conrad. But Montana is a trout state and, for the foreseeable future at least, widespread pike lakes are not in the picture.

**Before the birds can be banded they must be caught. Here, Tom Mussehl (L) and Dr. Bob Eng make ready to net 3-week old chicks. The chicks blend so well into their surroundings that they are difficult to find in the sage and grasses.**

# Sagebrush Sleuths

Motorists and ranchers east of Lewistown in the Winett-Grass Range area shake their heads in wonderment at the sight of men tramping the sagebrush flats and carrying long handled nets. This activity is part of a sage grouse study now in its third year.

The sage grouse, largest grouse of Montana, once thrived in sage plains and plateaus of western United States. The colorful rituals of the grouse were mimicked by Indians in some of their costumes and dances. But the birds are found now in huntable numbers only in a few states. They are so closely tied to sage that their very existence depends upon large expanses of the colorful pungent plant.

Young birds are marked with metal tags on the upper wings (see arrow). Hunters are urged to return these bands to the Montana Fish and Game Department. During fall the metal tags can be missed quite easily and hunters find many by feeling for them.

Growth of wing feathers shows age of the bird and establishes the peak of grouse hatching. This system was worked out by Montana biologists with birds reared in captivity. Such information is used in determining the proper dates for opening seasons.

As sage is destroyed to make room for range grasses, the grouse vanish. In the light of this new land practice, it is important we learn more about the big grouse so that we can aid their survival in all possible ways. How far will grouse move from strutting to nesting grounds, what age classes produce best, how long do birds remain productive. what are the requirements for wintering, what are the different cover requirements? These are some of the things that must be better understood. Hunters can be of invaluable help by returning any bands from birds they take.

After the young are caught, hens can often be called in by whistling sounds similar to the frightened call of chicks. Bob had this one (upper left) worried, but the wary hen stayed just out of nets' reach.

# THE UPPER GALLATIN ELK HERD

## . . . Cooperative Management . . .

Elk management has been put on a pretty firm foundation over most of Montana; however, there is always room for improvement. One spot which definitely needs looking after is the Upper Gallatin area.

Here, periodic winter starvation since 1926 and a lower than normal rate of calf production are important indications of poor winter range conditions. And even more serious in the long range picture of this important area has been accelerated soil erosion evident on the more exposed and heavily used slopes and ridges.

In a recent cooperative agreement between the Montana Fish and Game Department, the National Park Service, and the U. S. Forest Service, action is being taken to initiate a more effective program to manage this important segment of Montana's elk resources.

Before outlining the program agreement, it may be well to review the history of this particular area. In earlier years, elk hunters ranged over the entire Gallatin drainage some of which is now included within the boundaries of Yellowstone Park. After park boundaries were surveyed, hunting was concentrated on Specimen, Black Butte, Daly, Monument, Snowslide and Bacon Rind Creeks (see map). Hunting seasons were long and when snow forced the wapiti into hunting areas, the harvest was heavy. It was consequently felt that the elk needed added protection so in 1912 the Gallatin game preserve was created. During 1929, establishment of the present Yellowstone Park

boundary encompassed Specimen, Black Butte and Daly Creeks. The game preserves retained basically the same boundaries until 1959 when they were opened to hunting.

Reports of 1921 show that the heads of Tepee and Daly Creeks were extensively grazed. By 1923 the elk herd was conservatively estimated at 3,000 and it was stated that the remarkable increase of the past five years shows the elk herd can be built up. This same year the ranges of Tepee and Daly Creeks were seriously overgrazed with 75% annual growth of the grass and 100% of the willow and aspen utilized. The same report states that all other range units show very little evidence of grazing.

There was deep, drifted and badly crusted snow in late February and March 1924 and during all of February and March 1925 but few elk died of starvation these winters. However, reports from the winter of 1925-26 showed that as the snow became deeper and more settled in the bottoms and timber, elk moved to windswept ridges and southern exposures where forage was more easily available. There they grazed everything that could be reached, leaving all exposed areas as bare as a floor. All of the grasses, weeds, and browse were utilized. Aspen bark was chewed off in localities where food was especially scarce. With the forage badly over-used, nature took a hand in the affair and during the winter of 1926-27 the first heavy winter elk starvation loss was recorded.

By 1932 the more palatable forage plants were disappearing and the first indications of erosion were noted on the south slope of Black Butte to Crown Butte and on the south slopes of Taylor's Fork. Following the winter of 1935-36, the entire range area accessible during the critical winter period showed serious advanced signs of overgrazing. Shoestring and sheet erosion and the killing of the more palatable species of forage plants were the result of continuous overgrazing for a long period of time.

Additional elk winter range has been provided through acquisition, land exchange, and through reduced range use by livestock. However, studies by the National Park Service, the National Forest Service and the Fish and Game Department show present conditions ranging from no significant improvement to deterioration in the Upper Gallatin.

Attempts to effect redistribution of elk from Daly and Tepee Creeks to areas farther north have been relatively unsuccessful. Meanwhile, severe destruction of grasses and browse in that area has continued and the remainder of the critical winter elk range in the Upper Gallatin is in generally poor condition.

Range overuse by elk has also had a drastic effect on other wildlife. Suitable habitat for beaver has been drastically reduced with the elimination of willow stands. Severe competition for winter forage exists among elk, moose, bighorn sheep, and mule deer.

If history is allowed to repeat itself, other species will eventually give way to elk as they have in areas throughout the West where elk range deterioration is critical.

The agreement between Yellowstone Park, the Forest Service and the Fish and Game Department is compatible with the interests of all. These agencies are all interested in proper care and utilization of natural resources and high quality recreation. The backbone of the whole program depends upon the building back of badly beaten elk winter range. This can be done if corrective measures are taken now. End results would mean better range and a greater sustained harvest of elk for hunters. Without corrective measures, the prospects for the Gallatin having an elk herd of any consequence in the future would be bleak and the situation would hardly represent a heritage which could be passed on with pride to the next generation.

The Montana Fish and Game Commission, the Regional Forester—Northern Region, the U. S. Forest Service, and the Superintendent of Yellowstone National Park have prepared a memorandum of agreement setting forth the following objectives and management plan.

OBJECTIVES:

1. To improve and maintain the basic soil and plant resources in the Upper Gallatin watershed.

2. To adjust the segment of the Gallatin elk herd which summers in Yellowstone Park to a level which will permit improvement in forage and soil conditions on the Tepee and Daly Creek winter ranges.

3. To develop elk herds which summer outside Yellowstone National Park for sport hunting in the Upper Gallatin.

4. To manage all elk in the Upper Gallatin so as to maintain a balance between elk and available natural food supplies.

PROGRAM:

I. Continue and intensify studies for evaluating range conditions and trends.

II. Divide the Upper Gallatin into management units to permit better manipulation of harvests from the Yellowstone National Park elk herd and resident elk herds outside. The major divisions are as follows:

a. That portion of the Upper Gallatin Drainage, above Sage Creek, on the west side of the Gallatin River and above Buffalo Horn Creek on the east side shall be managed as a unit.

b. The winter ranges on the Gallatin below this unit and Bear Creek on the Madison shall be managed for the benefit of resident elk herds which summer outside Yellowstone National Park.

III. Manipulate hunting seasons in the management units as follows:

a. The annual general hunting season in the upper unit will be not less than two weeks and not more than six weeks long, closing no later than the first Sunday in November. After the general season closing, the unit will be opened to a special season on a date dependent on elk movements into the area. To alleviate hunter congestion during the special season, hunter numbers will be controlled. Only hunters with a valid elk tag attached to their license will be allowed to participate in the special season. Total elk harvests from this unit will be regulated by a quota. The quota will include hunter harvest during the general season, hunter harvest during the special season, and Yellowstone National Park reduction.

b. Elk seasons in the lower units will be "bull only" hunts in succeeding years until the resident herds in units build up and are in balance with winter forage supplies.

c. Excessive winter concentrations of elk on the lower units can be detrimental to resident elk herds. If this ocurs following the general season closing date, the lower units will be reopened on a controlled hunt basis.

IV. To cooperate fully with the U. S. Forest Service and the Montana Fish and Game Department in the management of all elk in the Upper Gallatin, management procedures by the Park Service will be conducted within the Gallatin area of Yellowstone National Park.

a. If the results obtained by hunter harvest (and direct reduction) have not attained the annual objective of maintaining the herd at an acceptable level, the National Park Service will attempt to live trap elk to fill any requests for restocking of elk by transplant.

b. Reduction will be coordinated with reopening of the elk season outside the Park. The extent and duration of the direct reduction program will depend largely upon the success of the hunter harvest outside the Park.

# FARM PONDS

## For Fishing

LOUIS M. MOOS, Biologist,
USDA, Soil Conservation Service

Finding a place to go fishing is becoming more of a problem each year. Many farmers and ranchers are solving this problem by including the construction of a fish pond in the complete conservation plan for their farm or ranch developed in cooperation with the local soil conservation district. This plan includes the conservation of all resources of the farm — soil, water, plants, and wildlife. Multiple use of water in livestock and irrigation dams is considered in the conservation plan. These water areas can often produce fish and other wildlife, as well as provide a watering place for livestock or irrigation water.

There are certain features that must be considered at the time the pond is constructed if it is to be stocked with fish and properly managed for fish production.

SIZE:

A pond dependent on runoff water to keep it full should be at least an acre in size. Spring-fed ponds may be smaller. Where community fishing is desired, the pond should be three to five acres or more in size.

DEPTH:

Ponds should have sufficient depth to insure water during dry years and to prevent winterkill during periods of extreme cold and heavy snow. Winterkilling results from suffocation due to insufficient oxygen in the water. Fish ponds should have at least ten feet of water over 1/5 of the area at the time of the lowest water level. Sufficient depth is the best insurance against winterkill. In areas with severe winters a maximum depth of 15 to 20 feet is de-

sirable and a depth of 15 feet over a considerable part of the pond is considered essential.

SHORELINE:

A fish pond should have a steep shoreline. The bank should have at least 3 to 1 slope. This will provide three feet of water at a distance of ten feet from the water's edge. Steep edges prevent large areas of shallow water and retard the establishment of aquatic weeds which are undesirable in a fish pond.

WATERSHED:

A complete conservation program should be established on the entire watershed to insure silt-free water. Ponds that are continuously filled with silt and muddy water are not productive. Overgrazing, cultivation on too steep slopes, and up-and-down hill farming all add to the erosion of the watershed and cause siltation of the pond. A good soil conservation program on the watershed is a must in the management and production of the fish pond. Fencing the water area and seeding grass around the outside of the pond will help keep out the silt and will keep the cattle from muddying the water. A tank should be provided below the dam for watering livestock.

DRAIN:

The pond should be constructed so that the entire bottom slopes toward a drain pipe. A drain pipe and valve should be installed so that all of the water can be drained out. Draining the pond is desirable when the pond becomes overstocked with stunted or undesirable species of fish, and for removing large fish before restocking. A trickle tube should be installed as a protection for the spillway when there is overflow water for long periods of time.

SPILLWAY:

The spillway should be wide so that the overflow will be shallow. This will help prevent loss of fish from the pond.

**Ken Bolland with two fine Rainbows taken from a farm pond. Photo by author.**

Screens should not be placed across the spillway; they might collect debris and cause overtopping of the dam.

WATER SUPPLY:

The water supply should be sufficient to maintain a fairly constant water level. If the water supply is a diversion from a stream, there should be a minimum of water flowing through the pond. Water going over the spillway carries much of the fertility of the pond with it. Running water is not necessary in a fish pond but is very desirable. There is less chance of winterkill in shallow ponds which have water running through them.

CONTROL OF WEEDS:

Both marsh plants and submerged pond weeds are undesirable in a fish pond. They interfere with boating, swimming and fishing, and provide escape cover for bluegill, whose rapid

reproduction often overpopulate the pond. Marsh plants invading the pond should be cut off or pulled out as soon as they appear around the edge. Proper construction of the shoreline will help prevent the establishment of weeds. Chemical control may be necessary.

STOCKING:

*Cold Water Fish*—If the temperature of the water does not exceed 75 degrees at a depth of two feet below the surface during the period of warmest summer temperature, the pond should be stocked with trout. Either brook or rainbow trout may be stocked. They should be stocked at a rate of 500 fingerlings per surface acre. Trout grow rapidly but do not reproduce in a pond so periodic restocking is necessary. The interval of restocking depends on how hard the pond is fished.

*Warm Water Fish*—If the temperature of the water a depth of two feet below the surface exceeds 75 degrees during the summer months, the pond should be stocked with warm water species. Bass and bluegill have been stocked in most of the warm water ponds. If these ponds are not fished hard, they may become overstocked with small bluegill. Where fishing is not heavy, bass alone do well. One pond in southeastern Montana stocked with bass alone has produced bass over six pounds. Northern pike and walleye have been stocked in some of the larger ponds 15 to 20 or more acres in size. Walleye are very hard to catch with hook and line so they are not now recommended in farm ponds.

WHERE TO GET FISH:

Fish for stocking ponds are available from several sources—state, federal and commercial hatcheries. The laws of Montana provide for the establishment of private permits on artificial ponds. The Fish and Game Department will inspect the pond, determine what species may be stocked and issue a private pond owner's permit. The pond owner may then buy fish to stock the pond and operate it as a private pond. Applications for fish and for private pond owners' permits are available at the U. S. Soil Conservation Service office and from the Fish and Game Department.

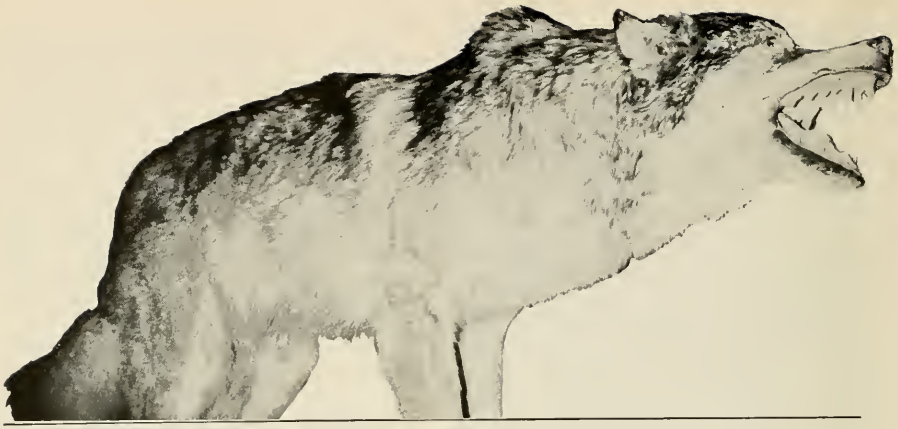
HARVESTING THE CROP:

Harvesting the annual crop of fish is the most important part of fish pond management. Trout grow very rapidly in the small farm ponds and should be fished hard as soon as they reach edible size. Many ponds have 10 or 12-inch fish a year after stocking small fingerlings. The second year they will be 15 to 16 inches long and the third year up to 20 inches, weighing three to four pounds. Six to eight pound trout have been taken from some ponds.

Most warm water ponds are not fished hard enough to remove the annual crop of fish, and they soon become overpopulated with stunted bluegill, too small to eat. It is impossible to overfish a bass and bluegill pond with hook and line. So, do a lot of fishing; let your friends and neighbors help you harvest the crop. The more edible sized fish removed from the pond, the more food there will be for the smaller fish. Remove the large ones and let the small fish grow.

* * * *

If you are planning a fish pond, get technical assistance from the Fish and Game Department or the U. S. Soil Conservation Service and construct the dam and pond properly. In this way you will have a better pond, produce more fish, and enjoy the results a great deal more.



# ERA OF LOBO

By VERN CRAIG

Some one million years ago during the Pleistocene epoch, according to geologists, northern Europe, northern Asia and northern United States were repeatedly covered with a great ice cap. In this dim past, the primeval true wolves appeared, recording their early history in soft muds and asphalt deposits.

They were destined to inhabit a great geographic range. In the north country they range almost to the pole. Wolf tracks have been seen less than 400 miles from the pole on the northernmost point of land in the world. They apparently inhabited every state on the North American continent, and ranged south through Mexico into South America. Considerable numbers still roam Alaska, Canada and parts of Mexico and drifters frequently wander into the United States across northern boundaries. Reports of wolves taken in the United States during 1958-59 list 227 for Alaska, 7 for Michigan, 122 for Minnesota, and 1 for both North and South Dakota.

Wolves that ranged in Montana were the "timber" or gray wolves. According to records, many of them weighed nearly one hundred pounds and they roamed the state in considerable numbers. Luttig, in 1812, reported huge packs of wolves on the upper Missouri. He stated that they would follow men for days, hoping to clean up any game that was left. Audubon, in his journals, writes of wolves feeding f r o m pig troughs around Fort Union. Hundreds of wolf paths led to the fort. From 1875-1877 there annually were shipped out of Fort Benton about 30,000 wolf skins.

In the range of the buffalo, "loafer wolves" were numerous and lived almost exclusively on the bison. Lewis and Clark, in their epic journey, made notations on the great profusion of wolves such as—"we saw a great many wolves in the neighborhood of these mangled carcasses (buffalo driven over a precipice by Indians) they were very fat and gentle, Capt. C. who was on shore killed one of them with his espontoon". This was at the mouth of the Judith River.

Timber wolves vary in color from black through grays and browns to almost pure white. They are highly intelligent animals with a keen nose and great endurance. M a l e and female wolves apparently mate for life. The

"lone wolf" so often dramatized in literature is usually a male or female that has lost its mate. Females mature and mate in about two years while males require about three years to reach maturity. Both parents tend to the pups which abandon dens when 2½ to 3 months old. Commonly, wolf packs are members of individual families consisting of a pair of adult wolves and their yearling or two-year-old offsprings.

Facts about wolves become so inextricably mingled with fancy that it is often impossible to separate myths from truths. There is no doubt however that wolves made a deep impression on early civilization and soon became the arch-enemy of stockmen. Legends and folklore of the "high executioner" are innumerable and while most dwell upon the ferocity, destructiveness and cunning of the wolf, yet a few show a more kindly image. Perhaps the best known legend is that of Romulus, reputed founder and first king of Rome, who with his twin brother, Remus, was rescued from the Tiber River and suckled by a she-wolf.

In 1920, children were supposed to have been taken from a wolf den in Midnapore, India. One died soon after captivity while the other, about eight years old when taken, was supposed to have lived to seventeen years of age, exhibiting w o l f - l i k e characteristics throughout his life. Similar incidents have reputedly occurred since that time.

Getting closer to home, a news article in the Roosevelt County Independent, July 18, 1921, reports this strange incident.

"Infant Fondles Big Gray Wolf"

"Little Sarah Paulson, five-years old, is the baby daughter of Mr. & Mrs. Charles Paulson who live on the ranch just this side of Rocky Springs near Miles City. One morning Sarah was playing a short distance from the house while her mother and an older child were washing the breakfast dishes." Paulson had ridden away only a short time before to look after some cattle. The mother and little brother heard the baby laugh as she kept repeating—"pretty doggy, pretty doggy".

The collie dog belonging to the family had accompanied Paulson, and Mrs. Paulson who was busy asked the little boy to look out and see what dog Sarah was playing with. "Mrs. Paulson was horrified to see her baby with its arms around the neck of a gray wolf. She saw her baby remove its arms from around the animal's neck and pat it on the head. The great brute's lips were drawn up and its fangs showed white in a snarl. The wolf caressed the child with its lolling tongue and the baby gurgled in pleasure." Eventually the wolf was frightened away, the child running for a short distance alongside.

But stories of wolves showing any tenderness or amiability toward man are exceptional. Most depict, in gruesome detail, hapless travelers fleeing for their lives or being devoured by packs of howling, snapping beasts. A number of tales come from the old world and it does appear that the European wolves, especially of Spain and southern France, were more ferocious than those of North America. Actually, authentic cases of wolves killing humans are few in North America, though there are many stories of attacks and narrow escapes.

Here is an account of an encounter with wolves in Montana:

Winnett Times (Jan. 6, 1919)

"Choteau County Farmer is Winner in Mad Race with Death.

"Arthur Suredferger had been to Fort Benton for supplies. Early in the dusk of the evening he started back toward his ranch. On the way he noticed far behind him, a pack of animals running toward him. He paid little attention to the wolves as he had no idea what they were and had no idea of danger.

"He was driving along at a leisurely pace when the hunger-maddened beasts caught up with him. Then he realized his danger. His attempts to frighten them off were without avail. One of the big wolves jumped at him and al-

**Wolf pups abandon dens when two and one half to three months old. This young pup resembles a young coyote, but wolf characteristics will be very pronounced after a few weeks of growth.**

most got a foothold on the car. Then he stepped on the gas and the race between him and death began . . ."

According to the account, the farmer soon out-distanced the wolves, then turning to look for his pursuers, ran off the road. The road was muddy and some tense moments were spent while Suredferger was forced to put on his tire chains in order to get his car out of the ditch.

It is the opinion of many students of nature that predators tend to cull aged, feeble and sick animals from herds, leaving the healthier and more alert. This seemed to have some merit on the buffalo range, probably because these animals, outside the main body of herds, were thus more vulnerable. Certainly, wolves were capable of downing the healthiest and strongest bison, though not without misfortune among their own ranks. In his book, "The American Bison", Garretson writes "One of the worst, most persistent and ever-present enemies the buffalo had to contend with was the wolves which followed the herd in great packs, destroying many calves and the aged and the feeble members that were usually relegated to the rear and outskirts of the herd."

Such culling of inferior animals is not shown, however, in a study of a pack of 10 Alaskan wolves by Bob Burlholder. In his six-week study he found that the pack averaged one kill every 1.7 days. Caribou and other animals taken were in excellent condition and prime in age. Where moose were concerned, however, there was an apparent selectivity for calves. No evidence of hamstringing was found in the course of this study. Many old-time reports though describe wolves cutting cows, calves and old bulls out of a herd and

then hamstringing them in precision teamwork.

Wolves are great travelers and characteristically hunt along runways (irregular circles from 20 to 60 miles in diameter, though sometimes larger). Along these routes, high points are used as observation points. The runways are generally traveled counter-clockwise. In heavy snows, wolves of a pack often walk or lope in each others footsteps. Packs may sometimes split and then rejoin again, or on occasion, members may lag some distance behind. Trails, water courses. frozen tributaries and even roads may be used as portions of a runway.

Hungry wolves apparently are not too concerned with what they eat, for accounts are many of wolves digging out prairie graves and eating the bodies. This, it is believed, was one factor that contributed to burial of plains Indians upon platforms, out of the reach of hungry animals. Antelope, too, were prey of the prairie marauders and were occasionally seen within the confines of buffalo herds apparently for protection.

The last stand of the buffalo, which once covered a large part of North America, was concentrated in the eastern two-thirds of Montana, portions of North and South Dakota and northern Wyoming. As the buffalo were replaced by domestic stock, wolves often turned to cattle, sheep and horses for their larder. The bitter struggle between man and wolf took on a more personal aspect in the territory of Montana—a struggle that was long-lasting and expensive for the stockman. Quite often, injury or old age would force wolves to turn from wild prey and take to the more easily caught domestic animals, thus the reputation of "renegade" would be established. The Highwood mountains, the Bear Paws and the Little Belts were areas of noted wolf concentrations. Many wolves became legendary in Montana history for both their destructiveness and their cunning to elude their would-be exterminators.

The Benton Weekly Record on November 10, 1883 gives this account of wolf predation on domestic stock: "Wolves are becoming entirely too numerous for comfort on the Marias. One or more calves are killed daily and the wolves are learning to follow the herds of domestic cattle the same as they formerly did the buffalos, cutting out the cows and disabling cows and old steers." It is notable that many of the early accounts pointed out the wolves' apparent preference for calves. Maimed and bobtailed cattle were common sights on western ranges and records tell of wanton killing for the pleasure of the sport. This condition did not exist in the aforementioned Alaskan study where killed animals were almost entirely eaten.

After what seemed to be a temporary drop in wolf depredations, stockmen during 1906 again noted the big animals in large numbers and organized to protect their interests. The Anaconda Standard, December 19, 1906, reported —"North Montana is organizing a wolf hunt in sheer self-defense. The hunt will be organized in this city and will be conducted much on the order of the rabbit drives in Kansas. Not for many years have the wolves been so numerous or rapacious as they are on the range this year, even venturing into the environs of Havre."

About the same time, the Great Falls Daily Tribune had this to say: "Marauders from the Bear Paws are depleting the flocks and herds of Chouteau County. Big bounties are offered and a wolf hunt is being organized." Wolf packs were reported attacking sheep flocks even in the daytime and paying little attention to herders. This particular pack of wolves was ranging from the Bear Paws to the Milk River. So serious was the killing that stockmen estimated 10-20% of calves being born in the Rocky Mountain states were taken by wolves in 1907.

In Montana as elsewhere, stockmen soon learned that they were dealing with an animal of high intelligence and

great cunning. The Department of Agriculture in one of its bulletins reported —"Most of the wolves trapped are less than a year old. After a wolf has reached its third year and run the gauntlet of traps, guns and dogs, its chances of dying of old age are excellent." Concerning the capture of the Custer Wolf, the Dillon Examiner in 1921 reported — "He loped through every kind of danger and passed them all. He sniffed at the subtlest poison and passed it by. The most adroitly concealed trap was as clear to him as a mirror in the sun."

Almost every conceivable bait and trap have been used to take wolves. Some of the more primitive were pits, corrals and dead-falls. One of the most unique methods is that of whalebone spirals or springs used by Eskimos. Baleen from the bowhead whale is moistened, coiled and the spiral tied securely. It is then wrapped in fat or blubber and allowed to freeze. When frozen, the string or sinew holding the coil is cut. If a wolf gulps the bait, warmth and digestion soften the fat whereupon the sharpened whalebone straightens out, piercing the stomach of its hapless host. More modern methods are the set gun, the steel traps, poison and digging out of dens. Of all methods, E. F. Grand, district agent for the U. S. Fish & Wildlife Service, states that "in Montana at least, destruction of dens was the most practical and efficient method of control."

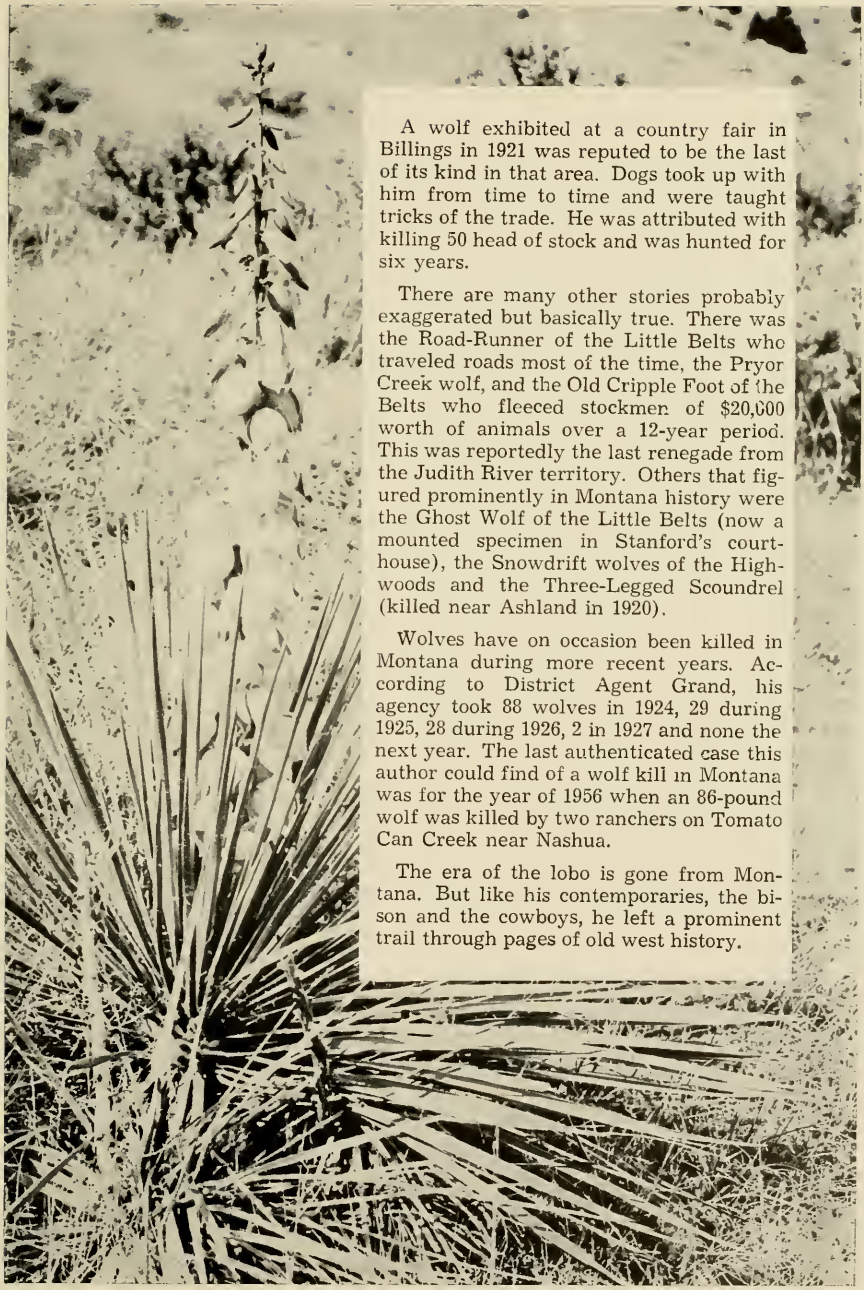
Bounties for wolves have been long-standing but ineffective as a control measure. Payment of wolf bounties can be authenticated to the time of early Greece. The first wolf bounty on our continent was enforced during 1630 in Massachusetts. Virginia was quick to follow suit in 1632. Everywhere the bounty soon became an instrument of fraud. Montana was no exception. For example, the Daily Yellowstone Journal during April of 1911 wrote of trappers rearing wolf cubs until they reached adulthood so they would bring a higher bounty. They were also saving a few she-wolves to rear litters which could be bountied. Under the bounty system it was not unusual for trappers to attempt to represent coyote scalps as those of wolves. Another common fraud was to take scalps from one state and bounty them in another where more money was being offered.

Eventually the wolves, harassed from every corner, were no longer common on the range lands and foothills of Montana. Except for an occasional drifter, they are now seen mostly in the memories of old-timers who enjoy spinning yarns of renegade lobos. There was the Custer wolf of South Dakota that supposedly wandered into Montana on occasion. It is written that: "For nine years the Custer wolf struck terror to the hearts of ranchers in that section. Many credited the story that it was not merely a wolf but a monstrosity of nature, half wolf and half mountain lion, possessing the cruelty of both and the craftiness of Satan himself." According to the story, the Custer wolf took up with two coyotes after its mate was killed. The Department of Agriculture wrote: "He attached the coyotes to himself not as equals but as slaves." When shot, this renegade weighed 98 pounds and measured six feet from nose to tip of tail.

Many yarns are told too about a white wolf of southwest Montana. The Plevna Herald in 1921 gave this account:

"Snow White Veteran Thief of Beaverhead Hunted for 18 Years"

"A monster timber wolf which for years has wrought havoc with stock herds in the southwestern corner of the state and which has been hunted times without number by expert trappers, was captured and killed last week by Bill Gray, a government trapper in the wilds of Ashbaugh Canyon in Beaverhead County. Although the big brute had grown gaunt from five days without eating, during which time it dragged a big steel trap on its left forefoot, the carcass weighed 95 pounds after it was brought to Dillon."



A wolf exhibited at a country fair in Billings in 1921 was reputed to be the last of its kind in that area. Dogs took up with him from time to time and were taught tricks of the trade. He was attributed with killing 50 head of stock and was hunted for six years.

There are many other stories probably exaggerated but basically true. There was the Road-Runner of the Little Belts who traveled roads most of the time, the Pryor Creek wolf, and the Old Cripple Foot of the Belts who fleeced stockmen of $20,000 worth of animals over a 12-year period. This was reportedly the last renegade from the Judith River territory. Others that figured prominently in Montana history were the Ghost Wolf of the Little Belts (now a mounted specimen in Stanford's courthouse), the Snowdrift wolves of the Highwoods and the Three-Legged Scoundrel (killed near Ashland in 1920).

Wolves have on occasion been killed in Montana during more recent years. According to District Agent Grand, his agency took 88 wolves in 1924, 29 during 1925, 28 during 1926, 2 in 1927 and none the next year. The last authenticated case this author could find of a wolf kill in Montana was for the year of 1956 when an 86-pound wolf was killed by two ranchers on Tomato Can Creek near Nashua.

The era of the lobo is gone from Montana. But like his contemporaries, the bison and the cowboys, he left a prominent trail through pages of old west history.

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